

Redmond Fire Department
Fire Prevention Division
Design and Construction Guide

This document is intended as a guide only. Specific requirements shall be established by a Redmond Fire Department representative. These guidelines are subject to change without notice and are subject to final interpretation by the Redmond Fire Marshals Office. These guidelines do not diminish or alter any requirement in the Community Development Guide, adopted Uniform Codes, City of Redmond Design Standards, or the Redmond Fire Department Standards.

A. EMERGENCY VEHICLE ACCESS ROADWAY REQUIREMENTS

1. Emergency vehicle access roadways shall have a minimum unobstructed width of 20 feet.
2. Where access exceeding 50 feet is needed to one or two dwelling units, a reduction to an unobstructed width of 14 feet is allowed if an approved 20' x 50' emergency vehicle operations area (EVOA) is provided.
3. Roadways shall have an all weather driving surface per City of Redmond standards. It shall be in place and able to support the weight of fire department vehicles as determined by City of Redmond Engineering construction inspectors (phone: 556-2725) prior to the delivery, use, or storage of combustible building materials to or at the site except small amounts used for concrete forms. Approved alternate surfaces shall be installed to a minimum of manufacturers specifications and City of Redmond Standard details.
4. All turns shall have a minimum 25-foot interior turning radii, 45-foot exterior turning radii.
5. Roadways must be within 150 feet of all portions of exterior walls.
6. Roadways must be within 50 feet of at least 25% of the exterior wall of a building.
7. Fire lanes shall be located wherever curbs, road edges, or loading areas are adjacent to the 20 foot wide vehicle access roadway.
8. Fire lanes must be marked per Redmond Fire Department standards. Fire lanes identified through site plan review shall be included on civil drawings. Additional fire lanes or marking may be required anytime during the life of the development upon evaluation by and direction of the Fire Marshal.
9. The emergency vehicle access roadway shall have a maximum grade of 10%. If off site access grades or on site grades are 11% or more, a design (plan and profile) of the proposed roadways must be submitted during Technical Committee review showing the extent and degree of overage in order to determine the mitigation which may be required. If the access grade is 15% or over, all structures shall be sprinklered. Additional mitigation may also be necessary.
10. Dead ends shall be no longer than 150 feet or provide a turnaround per City of Redmond standards. When three or more dwelling units are served by dead end access longer than 150' measured from the closest intersection or when one or two dwelling units are served by

dead end access longer than 300' there shall be provided a turnaround per City of Redmond standards.

11. Where more than 50 units are designed in a residential development, either single family, multifamily, retirement or similar, there shall be a minimum of two access points to the street system. Such access points shall be so located so as to provide for general circulation, alternate emergency vehicle access routes, through access and general area transportation design considerations.

One of these access points may be for emergency vehicle use only where the number of units does not exceed 100. Design of an "emergency vehicle use only" access must be approved by the Fire Department. Where a gate is desired for an emergency vehicle access roadway they shall be strobe activated electric gates with key and manual overrides and must have the approval of the Redmond Fire Marshal and the Technical Committee.

[Diagrams & tapers see CDG or RFDS or request a design meeting with the fire inspector]

B. ADDRESSING

1. One or more signs are required for all buildings and facilities.
2. The building(s) shall have the building address numerals (i.e. 15001), or series of numerals (i.e. 15001-15157) located on the upper 25% of the building face (this may be modified in downtown areas where streets are close to buildings) and situated so as to be clearly visible and easily legible from the street fronting the property. Numerals shall contrast to the background color. Numeral size shall be:

Setback from Street:	Less than 50'	Greater than 50'
Multi Family	6"-12" high	12"-18" high
Small Commercial	6"-12" high	12"-18" high
Large Commercial	12"-24" high	18"-24" high
Monument Sign	6" high	NA

3. Building units or suites shall be clearly differentiated in an ordered and sequential manner per RFD and RBD Standards and identified per floor where applicable.
4. Approval is required for building and unit addressing. A plan with dimensions must be submitted during Technical Committee review for approval.
5. Multi-story residential unit addresses must be "stacked" to the side of the stairwell.
6. Temporary signs shall be used at the job site as soon as construction begins. Numerals shall be high contrast in color, face the street fronting the property, and be a minimum 6" high.
7. Both public and/or private streets, avenues or portions thereof shall have appropriate number designations. Name designations shall not be used. Numbers shall be designated by the Building Division and Fire Marshal.

C. EXITS

1. The number and size of exits per Uniform Building Code, 1994, Chapter 10 shall be provided.
2. Exits shall be continuous and unobstructed to a public way.

D. CITY APPROVED FIRE ALARM SYSTEM

1. An approved fire alarm system may be required for one or more of the following reasons:
 - a. An approved alarm panel and means of transmission is required for monitoring of the sprinkler system.
 - b. New buildings 3000 gross square feet or more (unless R-3 single family or fully sprinklered) require an approved fire alarm system.
 - c. New or existing buildings 6000 gross square feet or more (unless fully sprinklered or existing R-1) require an approved fire alarm system.
 - d. Special hazards, occupancies, or situations may also require an approved fire alarm system.
 - e. Corridor smoke detection used in offices within fully sprinklered buildings as an alternate under U.B.C. 1005.7 exception 5 shall be installed per R.F.D. standards.
 - f. Hood and duct extinguishing systems shall be supervised and monitored as a separate zone by the alarm system.
 - g. Duct detectors shall be supervised on a separate alarm zone unless approved in writing by the Fire Marshal to be supervised as a trouble zone.
2. Single station smoke detection is required in all residential occupancies.
3. Three copies of plans, specifications, calculations, and a completed permit application form shall be submitted to the Redmond Fire Marshal for permit and approval. The permit must be obtained prior to work beginning.

E. CITY APPROVED SPRINKLER SYSTEM

1. An approved sprinkler system may be required for one or more of the following reasons:
 - a. Access grades to or within this site require mitigation which will include a requirement for an approved fire sprinkler system in every building.
 - b. Buildings with gross square footage of 6,000 square feet or more require an approved fire sprinkler system.
 - c. All residential occupancies with five (5) or more units; or hotels/motels with eight (8) or more guest units require an approved fire sprinkler system.
 - d. Any assembly occupancy with a calculated occupant load over 200 requires an approved fire sprinkler system.
 - e. Certain hazardous occupancies and/or storage situations require an approved fire sprinkler system.
 - f. Where calculated fire flow demand for a non sprinklered building exceeds the available water or exceeds 3500 g.p.m. then an approved fire sprinkler system is required.
2. All underground sprinkler supply piping, water mains, and hydrants shall be included on civil drawings and shall be approved by the water supplier and the Redmond Fire Department.

3. DOH approved back flow prevention is required. Indicate on submittal whether this will be installed inside the building or outside the building in a vault. This assembly shall be tested by a certified backflow assembly tester. After a satisfactory test is completed, backflow assembly test form shall be submitted to the Redmond Fire Department prior to acceptance of the related job.
4. Three copies of plans, specifications, calculations, and a completed permit application form shall be submitted to the Redmond Fire Marshal for permit and approval. The permit must be obtained prior to work beginning.
5. A dedicated riser room with direct exterior access shall be provided in an approved location. The proposed location of this room and the access door shall be indicated on your submittal.

F. VALID CONTRACTS ARE REQUIRED FOR FIRE PROTECTION SYSTEMS

1. A valid contract with a "prime contractor" is required for any monitored system in the City of Redmond. Contracts shall include:
 - a. Monitoring by an approved central station.
 - b. Regular, scheduled inspection and maintenance, and emergency repair service (upon direction of Fire Department personnel and without being contingent upon other approval); all per Redmond Fire Department Standards.

G. KNOX BOX

1. One or more "Knox" key boxes may be required with any project. All buildings which have a fire sprinkler system or a fire alarm system shall have approved access to an emergency key box. Both recessed or surface mount boxes are available.
2. A "Knox" padlock is required for gates and some other applications.
3. "Knox" key switch is required for , electric gates, certain mechanical equipment, and/or some electrical systems.
4. Grand master keying and labeling is required.
5. Contact the Redmond Fire Department, 556-2200 for purchase information.
6. Contact your fire inspector for number, location, and type details.

H. WATER SUPPLY & HYDRANTS

1. Maximum hydrant spacing is 300 feet on center for commercial or multi-family; 600 feet on center for surface parking lots.
2. Hydrants must provide sufficient fire flow to meet the required fire flow as calculated by the Fire Department.

3. Maximum hydrant spacing is 300 feet on center for multi-family residential and commercial projects. Where structures on a dead end access are over 150 feet from a hydrant, an additional hydrant may be placed within 150 feet and placed in relation to the overall development and existing hydrant layout.
4. Final hydrant and F.D.C. locations and water mains must be shown on the civil drawings and approved by the water purveyor and Fire Marshal.
5. Hydrants must be in place and serviceable prior to the delivery, use, or storage of combustible building materials.
6. Commercial underground sprinkler supply shall not be less than 6" D.I. pipe. F.D.C. lines shall be no smaller than one pipe size less than the sprinkler supply and of a size hydraulically proven to supply the system demands at normal fire engine working pressure. F.D.C. lines shall be shown on preliminary designs as no less than one pipe size smaller than the sprinkler supply. Three and four plexes shall have a minimum 4" D.I. pipe supply. Residential underground supply shall be a minimum 2" high molecular poly pipe
7. Proposed hydrant and F.D.C. locations and existing hydrant locations shall be shown on Technical Committee plan submittal. Hydrant locations must be coordinated with and approved by both the water supplier and the Redmond Fire Department.
8. Hydrants shall be no closer than 12'0" to a carport, garage, or dumpsters. Planter islands or peninsulas for hydrants require a minimum diameter of 8 feet. Four feet is to be maintained between face of curbs and fire protection equipment and between hydrants, F.D.C.s, and P.I.V.s. Hydrants, F.D.C.'s and P.I.V.'s should be a minimum of 40 feet from other structures and on the opposite side of the access from the building they serve. F.D.C.'s and P.I.V.'s shall be located adjacent to a hydrant.
9. A 5", locking, Storz adapter is required for steamer ports on all hydrants including existing hydrants considered important by Redmond Fire Department in relation to a proposal.
10. A current fire flow report which includes information from both of the following methods shall be required during the review process:
 - a) Provide the results of a functional flow test performed by a fire protection consultant. The test shall record pitot gauge readings for all ports opened, flow calculations for each port flowed, static and residual pressure readings, location of the test (identify specific hydrants used and what each was used for), calculated flow at 20 psi residual, and a flow graph.
 - b) Provide a hydraulically modeled fire flow estimate from the City of Redmond Water Utility. This flow estimate shall be the gallons per minute available at 20 psi residual for the maximum instantaneous peak. water pressure zone(s) shall be identified. Any peculiarities of the water supply system at the location should also be noted.
11. F.D.C.'s shall terminate in a vault or riser room. The check valve must be accessible.

I. HEIGHT

1. If stock is over 12 feet (or even 6 feet in some cases) then Article 81 of the Uniform Fire Code applies. Possible interior and/or exterior storage areas and proposed heights must be indicated on the site plan or a separate submittal.
2. High rise is as defined by the Uniform Building Code.

J. COMMERCIAL COOKING EQUIPMENT

1. A Type I hood and an approved, tested, and maintained fixed fire protection system is required when commercial cooking equipment is used or in any commercial occupancy where cooking produces grease laden vapors. Activation of the system shall be supervised and transmitted as a separate zone on the building alarm system (where applicable).

K. GAS METERS

1. Bollards are required around natural gas meters if the driving surface is within 20 feet. Placement shall be per Redmond Fire Department standards.

L. PERMITS

1. Permits are required for storage, handling, processing, or use of any hazardous processes or materials regulated by the Uniform Fire Code. Contact Mike Trabue, Redmond Fire Department, 556-2231.

M. PHASING

1. If some C.O.s are desired prior to others, submit a separate phasing plan to Technical Committee for approval. This plan must indicate limits of construction/occupancy, types and location of barriers, traffic patterns, parking, and phasing of utilities, as well as a plan for maintaining uninterrupted service and access.
2. Phasing is not possible on some projects. In these situations no occupancy will be allowed until all certificates of occupancy are signed.

N. FIRE EXTINGUISHERS

1. Fire extinguishers rated 2A 10 BC shall be located a minimum of one per 3000 square feet. Travel distance from any location to an extinguisher shall in no case exceed 75 feet.
2. Fire extinguishers shall be wall mounted so that the top of the extinguisher is no higher than 54" A.F.F.
3. One or more non A rated, sodium bicarbonate or potassium bicarbonate dry chemical type, minimum 40 B.C. fire extinguisher(s) shall be installed in (an) approved location(s) in the kitchen area. Travel distances shall not exceed 30 feet from any location in the kitchen area to an extinguisher.

4. Fire extinguishers shall be maintained per R.F.D. Standards and shall be easily visible and readily accessible by any occupant at all times.
5. Proposed locations should be near exits or exit corridors, or along main aisles.

O. OTHER

1. Interior standpipes are required per the U.B.C., in large buildings, in buildings of 3 stories or more, or as indicated by a fire department representative..
2. Exterior standpipes may be required when vehicle access is impossible or inadvisable in the opinion of the fire department representative and an exterior supply is needed.
3. Commercial dumpsters and containers with an individual capacity of 1.5 cubic yards or greater shall not be stored or placed within five feet of combustible walls, openings, or combustible roof eaves line. EXCEPTION: Areas containing dumpsters or containers protected by an approved automatic sprinkler system.
4. Commercial and residential development will be assessed impact fees per the City of Redmond adopted fee schedule.

REDMOND FIRE DEPARTMENT
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Redmond WA 98052

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revised 5/6/97

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